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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/715,787	11/17/2000	Peter A. Barany	NRT.0072US	9500

21906   7590   01/08/2009
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EXAMINER
MEW, KEVIN D

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
01/08/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	09/715,787	BARANY ET AL.
	Examiner	Art Unit	
	Kevin Mew	2416	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>21 October 2008</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,3-16,18-29,31-34 and 36-41</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>5-12,14-16,18-29,31-34,37-39 and 41</u> is/are allowed.

6)☒ Claim(s) <u>1,3,4,13,36,40</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Detailed Action

Response to Amendment

1.   Applicant's Remarks/Arguments filed on 10/21/2008 regarding claims 1, 34, 36, 40

have been considered. Claims 1, 3-16, 18-29, 31-34, 36-41 are currently pending in the

application. Claims 2, 17, 30 and 35 have been cancelled by applicant.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1, 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Grubeck et al.

(USP 6,449,484).

Regarding claims 1, Grubeck discloses a method of interleaving speech data

(**interleaving voice data**, 13, lines 1-48, and Figs. 3 and 9) communicated with a particular

mobile station (**a mobile station MS1**, col. 12, lines 31-58, col. 13, lines 1-48, Figs. 3 and 9)

over a plurality frames (**over a plurality of TDMA frames 1-32**, col. 13, lines 1-48 and Figs. 3

and 9), comprising:

receiving, by a system from the particular mobile station in a communications session

over a wireless channel, a first set of speech data (**receiving, by the base station from the

mobile station MS1 in a communication session over a wireless channel CH1, a first set of**

speech data comprising both 1DATA1(3) and 1DATA3(3), col. 13, lines 1-48 and Fig. 9),

wherein the first set of the speech data has been interleaved by the particular mobile station (**a**

first set of speech data 1DATA1(3) and 1DATA3(3) has been interleaved by the mobile

station MS1, col. 13, lines 1-48 and Fig. 9) according to a first algorithm over a first set of plural

frames (**according to a first algorithm of putting the 1DATA1(3) over frames 5-8 and**

1DATA3(3) over frames 13-16, col. 13, lines 1-48 and Fig. 9), wherein a first frame in the first

set is spaced apart from a second frame in the first set by at least one other frame not in the first

set (**first frame (frame 8) and second frame (frame 13) spaced apart by frames 9-12 that are**

not the first set, Fig. 9); and

receiving, by a system from the mobile station in a communications session over a

wireless channel, a second set of speech data (**receiving, by the base station from the mobile**

station MS1 in a communication session over a wireless channel CH1, a second set of

speech data 1DATA2(3), col. 13, lines 1-48 and Fig. 9), wherein the second set of the speech

data has been interleaved by the particular mobile station (**a second set of speech data**

1DATA2(3) has been interleaved by the mobile station MS1, col. 13, lines 1-48 and Fig. 9)

according to a second, different algorithm over a second set of plural frames (**according to a**

second different algorithm of putting the 1DATA2(3) over frames 9-12, col. 13, lines 1-48

and Fig. 9).

Regarding claim 3, Grubeck discloses the method of claim 1, wherein the speech data

interleaved according to the first or second algorithm comprises speech data interleaved over

frames of a multiframe (**speech data interleaved over TDMA frames of a multiframe that comprises frames 1-32**, col. 13, lines 1-48 and Fig. 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grubeck et al. in view of Olofsson et al. (USP 6,134,230).

Regarding claim 4, Grubeck discloses all the aspects of claim 3 above, except fail to explicitly show the method of claim 3, wherein interleaving over frames of the multiframe comprises interleaving over a TDMA multiframe.

However, Olofsson discloses a GPRS system that utilizes 16-bit QAM modulation scheme (col. 2, lines 46-67, col. 3, lines 1-3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the interleaving system and method of Grubeck with the teaching of Olofsson in using 16-bit QAM modulation in a GPRS system such that the multiframe of Grubeck will be formatted as GPRS frame.

The motivation to do so is to provide the capability to vary the user bit rate such that a higher voice quality is achieved by using a higher user bit rate.

5.   Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grubeck et al. in

view of Hakansson et al. (US Publication 2004/0062274).

Regarding claim 13, Grubeck discloses all the aspects of claim 3 above.

Grubeck may not explicitly show each block comprises plural frames, each frame

containing plural bursts, the data being carried in data frames interleaved over bursts in the plural

frames, and receiving an end-of-data indicating frame to indicate that a data frame is the last data

frame; and interleaving the end-of-data indicating frame according to predetermined algorithms,

wherein the end-of-data indicating frame according to the predetermined algorithms

enables the end-of-data indicating frame to end within the same block carrying the last data

frame.

However, Hakansson discloses a block that comprises plural frames (**see the TDMA

frames in each block in Figs. 5 and 6**), each frame containing plural bursts (**see the bursts in

each frame in Figs. 5 and 6**), the data being carried in data frames interleaved over bursts in the

plural frames (see lines 1-12, paragraph 0027 and Figs. 5 and 6), and a method comprising:

receiving an end-of-data indicating frame to indicate that a data frame is the last data

frame (**receiving SID_FIRST frame**, Fig. 5); and

interleaving the end-of-data indicating frame according to predetermined algorithms

(**interleaving SID_FIRST frame with the last speech data frames**, see frames 5-8, Fig. 5),

wherein the end-of-data indicating frame (**SID_FIRST frame**, Fig. 5) according to the

predetermined algorithms enables the end-of-data indicating frame to end within the same block

carrying the last data frame (**by interleaving TDMA frames for the Last Speech frame with**

SID_FIRST markers to enable the last speech frame to end in the same block carrying the last speech data frame, see frames 5-8, Fig. 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the interleaving system and method of Grubeck with the teaching of Hakansson in interleaving SID_FIRST frame with the Last Speech frame such that the interleaving system and method of Grubeck will interleave the end-of-data indicating frame according to predetermined algorithms, wherein the end-of-data indicating frame according to the predetermined algorithms enables the end-of-data indicating frame to end within the same block carrying the last data frame.

The motivation to do so is to utilize the unused half bursts so that radio resources are not wasted.

6.   Claims 36, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grubeck et al. in view of Hamalainen (USP 6,072,787).

Regarding claims 36, 40, Grubeck discloses a method of interleaving speech data over a plurality of frames, comprising:

interleaving, by a mobile station, a first set of speech data (**a first set of communication voice signals have been interleaved by mobile station 22,** col. 5, lines 16-23, col. 10, lines 56-67, col. 16, lines 18-50, col. 17, lines 13-16 and Fig. 3) according to a first algorithm over a first set of plural frames (**according to the DSP processing for the GSM format over the a first set of speech data comprising both 1DATA1(3) and 1DATA3(3),** col. 10, lines 56-67 and Fig. 9) for communication over a wireless channel in a communication session (**in a communication**

session over a wireless channel in Fig. 1 and col. 12, lines 32-44), wherein a first frame in the

first set is spaced apart from a second frame in the first set by at least one other frame not in the

first set (**first frame (frame 8) and second frame (frame 13) spaced apart by frames 9-12**

that are not the first set, Fig. 9); and

interleaving, by the mobile station, a second set of the speech data (**a second set of**

communication voice signals 1DATA2(3) have been interleaved by mobile station 22, col. 5,

lines 16-23, col. 11, lines 1-26, col. 16, lines 18-50, col. 17, lines 13-16 and Fig. 3) according to

a second, different algorithm over a second set of plural frames (**according to the DSP**

processing for the CDMA/TDMA format over a second set of frames 1DATA2(3), col. 11,

lines 1-26) for communication over a wireless channel in the communication session (**in a**

communication session over a wireless channel in Fig. 1 and col. 12, lines 32-44).

transmitting the interleaved first and second sets of speech data to a radio network over

the wireless channel in the communication session (**cause first interleaved voice data in GSM**

format and second interleaved voice data in CDMA/TDMA format to be transmitted to the

radio network in the communication session, col. 10, lines 56-67, col. 11, lines 1-26, and col.

12, lines 32-44 and Fig. 1).

Grubeck may not explicitly show the telephone interface is coupled to a half-rate mobile

station.

However, Hamalainen discloses that a half-rate traffic channel is established with a

mobile station in a wireless communication system (col. 2, lines 8-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the interleaving schemes of Grubeck with the teaching of

Hamalainen in establishing a half-rate traffic channel with a half-rate mobile station such that

speech data received at the interleaving system of Grubeck comes from a half-rate mobile

station.

The motivation to do so is to increase the capacity of the wireless communications

system by doubling the number of subscribers when half-rate channel is established rather than

full-rate channel.

Allowable Subject Matter

7.   Claims 5-12, 14-16, 18-29, 31-34, 37-39, 41 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 5, the data is carried in data frame N starting in block B(x), and wherein

interleaving the data frame N according to the first and second algorithms comprises interleaving

the data frame N over blocks B(x + 2k) and B(x + 2k + 2), where k = INT(N/2).

In claim 14, wherein the last data frame is data frame M starting in block B(x), wherein,

if M is odd, interleaving the data frame M comprises interleaving the data frame M over busts in

the last frame in block B(x) and the first three frames of B(x+2), and wherein interleaving the

end-of-data indicating frame comprises interleaving the end-of-data indicating frame over bursts

in the last three frames of block B(x+2).

In claim 20, data frames I, I = 0 to M, are received starting in block B(x), the controller

adapted to interleave data frame I over blocks B(x + 2k) and B(x + 2k + 2), where k = INT(I/2).

In claim 34, an article comprising at least one storage medium containing instructions that when executed cause a mobile station to:

the first speech traffic frame n is interleaved according to the first algorithm in response to n being an even number, and the second speech traffic frame n + 1 is interleaved according to the second algorithm in response to n + 1 being an odd number.

In claim 38, the first data frame n is interleaved according to the first algorithm in response to n being an even number, and the second data frame is interleaved according to the second algorithm in response to n+1 being an odd number.

In claim 39, an article comprising at least one storage medium containing instructions that when executed cause the system to:

in response to detecting that the first mobile station has entered discontinuous transmission mode, re-assign the wireless channel portion to a second mobile station to enable multiplexing of traffic from the second mobile station onto the wireless channel portion while the first mobile station is in discontinuous transmission mode;

receive a request from the first mobile station to re-acquire the wireless channel portion, the request transmitted by the first mobile station in response to the first mobile station exiting discontinuous transmission mode.

In claim 41, a system for use in a mobile communications network, comprising:

in response to receiving the indication that the first mobile station has entered

discontinuous transmission mode, to multiplex traffic from a second mobile station onto the

wireless channel portion while the first mobile station is in discontinuous transmission mode,

wherein the controller is adapted to further:

receive a request from the first mobile station to re-acquire the wireless channel

portion, the request transmitted by the first mobile station in response to the first mobile station

exiting discontinuous transmission mode.

Response to Arguments

8.   Applicant's arguments filed 3/10/2008 with respect to claims 1, 3-4, 13, 34, 36, 40 have

been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's arguments on page 1, last paragraph of the Remarks that

Grubeck does not teach the added claim limitations in claim 1 of interleaving speech data over a

first set of frames such that two of the frames in the first set are separated by at least one other

frame not in the first set, a new ground of rejection is made by equating the first set of frames as

being 1DATA1(3) and 1DATA3(3) over frames 5-8, and frame 13-16, respectively. In light of

this interpretation, frame 8 and frame 13 are spaced apart by frame 9-12 that are not in the first

set of frames.

Conclusion

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The

examiner can normally be reached on 9:00 am - 5:30 pm.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

                                              /Chi H Pham/
    K. M./   Supervisory Patent Examiner, Art Unit
    Examiner, Art Unit 2416   2416
                                              1/5/09